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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/819,516	03/27/2001	Yutaka Nagakura	NEC N00-1101	2816

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EXAMINER

MOORE, KARLA A

ART UNIT

PAPER NUMBER

1763

DATE MAILED: 08/28/2003

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/819,516

Applicant(s)

NAGAKURA, YUTAKA

Examiner

Karla Moore

Art Unit

1763

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 July 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 10.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1 and 7-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's admitted prior art in view of Japanese Patent Publication No. 09-097768 to Ide.
3. Applicant's admitted prior art discloses the invention substantially as claimed in Figures 1-2 and pages 1-4 of the specification. The admitted prior art discloses a gas treatment apparatus comprising: an outer tube (2) having a gas inlet port (11) connected to a gas supply system for receiving the gas and a gas outlet port (10) connected to an exhaust pipe, and defining an inner space; a wafer boat (5) provided in the inner space and holding plural wafers spaced from one another in a predetermined direction; an inner tube (3) provided between said wafer boat and said outer tube and elongated in a predetermined direction; and a gas feeder (8) provided between said inner tube and said wafer boat, connected to said gas inlet port and defining a gas passage formed with a plurality of like gas outlet holes (9) equal in open area and equally spaced in said predetermined direction for blowing said gas to said wafers.
4. However, Applicant's admitted prior art fails to teach said gas feeder having a gas passage reduced in cross section from said one end portion toward another end portion.
5. Ide teaches a gas injector with a gradually decreasing cross section for the purpose of providing a uniform gas flow rate in a lengthwise direction (abstract).
6. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided a gas injector/feeder with a gradually decreasing cross section in Applicant's admitted prior art in order to provide a uniform gas flow rate as taught by Ide.

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7. With respect to claim 7, Ide teaches that the disclosed configuration keeps the pressure inside of the gas feeder substantially constant (see abstract).

8. With respect to claims 8-9 and 12, the courts have ruled that expressions relating the apparatus to contents thereof during an intended operation are of no significance in determining patentability of the apparatus claim. Ex Parte Thibault, 164 USPQ 666, 667 (Bd. App. 1969).

9. With respect to claim 10, said outer tube serves as an outer shell of a reactor forming part of a system capable of performing CVD.

10. With respect to claim 11, the courts have ruled that a claim containing a "recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus" if the prior art apparatus teaches all the structural limitations of the claim. Ex Parte Masham, 2 USPQ2d 1647 (Bd. Pat. App. & Inter. 1987).

11. Claims 13-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's admitted prior art in view of Japanese Patent Publication No. 09-097768 to Ide and in view of U.S. Patent No. 5,441,570 to Hwang et al.

12. Applicant's admitted prior art as disclosed in Figures 1-2 and pages 1-4 of the specification. The admitted prior art discloses a gas treatment apparatus comprising: an outer tube (2) having a gas inlet port (11) connected to a gas supply system for receiving the gas and a gas outlet port (10) connected to an exhaust pipe, and defining an inner space; a wafer boat (5) provided in the inner space and holding plural wafers spaced from one another in a predetermined direction; an inner tube (3) provided between said wafer boat and said outer tube and elongated in a predetermined direction; and a gas feeder (8) provided between said inner tube and said wafer boat, connected to said gas inlet port and defining a gas passage formed with a plurality of like gas outlet holes (9) equal in open area and equally spaced in said predetermined direction for blowing said gas to said wafers.

13. However, Applicant's admitted prior art fails to teach said gas feeder having a gas passage reduced in cross section from said one end portion toward another end portion.

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14. Ide teaches a gas injector with a gradually decreasing cross section for the purpose of providing a uniform gas flow rate in a lengthwise direction (abstract).

15. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided a gas injector/feeder with a gradually decreasing cross section in Applicant's admitted prior art in order to provide a uniform gas flow rate as taught by Ide.

16. Applicants admitted prior art and Ide disclose the invention substantially as claimed and as described above.

17. However, Applicants admitted prior art and Ide fail to teach the apparatus as an air-tight vessel.

18. Hwang et al. teach supplying and maintaining a vacuum, which necessarily implies the vessel is airtight, in a LPCVD process in order to deposit compound source gases on wafers (column 1, rows 20-24 and column 2, rows 25-31).

19. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided an air-tight vessel in Applicants admitted prior art and Ide in order to deposit compound source gases on wafer using an LPCVD process as taught by Hwang.

20. With respect to claim 14, Ide teaches that the disclosed configuration keeps the pressure inside of the gas feeder substantially constant (see abstract).

Response to Arguments

20. Applicant's arguments, see Paper No. 9, filed 06/06/03, with respect to the rejection(s) of claim(s) 1-19 under based on Hattori, Gengler and Hwang et al. have been fully considered. The rejection has been withdrawn because Hattori fails to teach a gas feeder with a plurality of like gas outlet holes equal in open area and equally spaced in said predetermined direction for blowing said gas to said wafers. Nor does Hattori, disclose motivation for applying the concave/convex gas feeder configuration with semi-circular in other gas processing apparatus. However, upon further consideration, a new ground(s) of rejection is made in view of Ide, which was a part of an IDS filed 7/22/03.

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Allowable Subject Matter

21. Claims 2-6 and 15-19 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

22. The following is a statement of reasons for the indication of allowable subject matter: The closest piece of prior art, with regards to the teaching of a gas feeder with a plurality of like gas outlet holes in a predetermined direction and with a conxex/concave shape, is U.S. Patent No 5,618,349 to Yuuki.

However, Yuuki fails to teach or fairly suggest the gas feeder comprising **semi-cylindrical side surfaces**. The prior art and the claimed invention all teach that the shape of the gas feeder determine the flow of gas. Although the **semi-cylindrical side surfaces** appear to be a minor, one of ordinary skill in the art would recognize that the absence or presence of semi-cylindrical side surfaces may have an effect on the desired flow pattern, thus differentiating the Yuuki from the claimed invention.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Karla Moore whose telephone number is 703.305.3142. The examiner can normally be reached on Monday-Friday, 8:30am-5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory Mills can be reached on 703.308.1633. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703.308.0661.

km

Primary Examiner
AU 1763

P. Hassanza del